Amendments to the Claims

The following listing of claims is intended to replace all prior versions, and lists, of the claims.

:

1-3 (Cancelled).

4. (amended) ~~The~~A reaction product of ~~the~~ a composition ~~of claim 1~~ comprising:

(A) non-branched polybutadiene having terminal hydroxyl functionality less than 2 per molecule by average; and

(B) branched polybutadiene having terminal hydroxyl functionality more than 2 per molecule by average;

the weight ratio of (A) to (B) being about 99:1 to 1:99

with a monomer or polymer (C), the reaction product having one or more hydroxyl, isocyanate, carboxyl, phenol, epoxy, or amine terminal groups.

5. (original) A curable composition comprising the reaction product of claim 4 and one or more chain extending agents.

6. (amended) ~~The composition of claim 1 further comprising~~ A composition comprising:

(A) non-branched polybutadiene having terminal hydroxyl functionality less than 2 per molecule by average; and

(B) branched polybutadiene having terminal hydroxyl functionality more than 2 per molecule by average;

the weight ratio of (A) to (B) being about 99:1 to 1:99, and a polyfunctional monomer or polymer (C) having functionality which is reactive with the terminal hydroxyl groups of (A) and (B).

7. (original) The composition of claim 6 wherein the polyfunctional monomer or polymer (C) is selected from organic polyisocyanates, polyamides, polyamines, anhydrides of dicarboxylic acids, polyepoxides, and polyesters.

8. (Amended) A prepolymer which is the reaction product of ~~the~~ a composition ~~of claim 1~~ comprising:

(A) non-branched polybutadiene having terminal hydroxyl functionality less than 2 per molecule by average; and

(B) branched polybutadiene having terminal hydroxyl functionality more than 2 per molecule by average;

the weight ratio of (A) to (B) being about 99:1 to 1:99, with an organic polyisocyanate (C).

9. (original) The prepolymer of claim 8 wherein the organic polyisocyanate (C) is selected from the group consisting of 4,4'-methylenebis(phenyl isocyanate), toluene diisocyanate, and hexane diisocyanate.

10.(original) A curable composition comprising the prepolymer of claim 8 and a chain extending monomer.

11. (original) The curable composition of claim 10 wherein the chain extending monomer is selected from the group consisting of diol and diamine.

12. (Amended) A direct cured polyurethane composition ~~comprising~~ prepared by reacting ~~the~~ a composition ~~of claim 1~~ comprising:

(A) non-branched polybutadiene having terminal hydroxyl functionality less than 2 per molecule by average; and

(B) branched polybutadiene having terminal hydroxyl functionality more than 2 per molecule by average;

the weight ratio of (A) to (B) being about 99:1 to 1:99,

with a polyisocyanate.

13. (amended) The ~~Composition~~composition of claim 12 in a form selected from roof water-resistant membrane, insulated glass sealant, hot melt adhesive, geo-membrane, and liquid binder in brake system.

14. (amended) Method of preparing compositions comprising:

(A) non-branched polybutadiene having terminal hydroxyl functionality less than 2 per molecule by average; and

(B) branched polybutadiene having terminal hydroxyl functionality more than 2 per molecule by average;

the weight ratio of (A) to (B) being about 99:1 to 1:99, comprising blending (A) and (B) in a ratio of 99:1 to 1:99 by weight.

15. (amended) Method of preparing prepolymers comprising reacting a composition comprising:

(A) non-branched polybutadiene having terminal hydroxyl functionality less than 2 per molecule by average; and

(B) branched polybutadiene having terminal hydroxyl functionality more than 2 per molecule by average;

the weight ratio of (A) to (B) being about 99:1 to 1:99, with organic polyisocyanate, phenol, amine, dianhydride, or peracid.

16. (original) Method of preparing cured thermoplastic resins comprising reacting a prepolymer prepared according to claim 15 with a polyfunctional monomer.

17. (original) Method of preparing a roof water-resistant membrane, insulated glass sealant, hot melt adhesive, geo-membrane, or liquid binder for a brake system comprising

reacting a prepolymer prepared according to claim 15 with a polyfunctional crosslinking monomer.